

## Chapter 7 Biological Resources

Only sections or other elements of Chapter 7 revised for the Final EIS are included here. These changed sections combined with the unchanged sections of Chapter 7 in the Draft EIS constitute Chapter 7 of the Final EIS. Please see the introduction to the “Changes Made in the Draft EIS in Response to Comments” section for a full explanation.

The following changed elements of Chapter 7 are presented on the indicated pages. All other sections of Chapter 7 remain unchanged from the Draft EIS. Please consult the Draft EIS for those sections.

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### **7.1.3.1 City-owned Site: Existing Conditions**

#### **Existing Habitats and Associated Wildlife at City-owned Site**

The City-owned site is mostly vacant and consists of upland grassland habitat. Vegetation on the site, which is periodically mowed, is dominated by tall fescue and thistle with patches of Himalayan blackberry. A few small trees are located at the northern boundary of the site. Wildlife species associated with this type of habitat are listed in Table B-2 (Appendix B).

The City-owned site is bounded by underdeveloped residentially zoned land to the north, undeveloped land (a scrub-shrub field) to the west, ballparks and commercial lots to the southwest, commercial and residential development to the south, and residential and commercial development to the east.

No federally or state-listed special-status species or priority habitats have been mapped by the federal government or WDFW within the boundaries of the City-owned site. The site is more than 1 mile from the documented occurrences of special-status bird species listed in Table 7-3. The site is within a larger general area where bog clubmoss, a state sensitive species, has previously been documented. Mapped priority habitats (riparian areas and wetlands associated with the Snoqualmie River) are located off-site to the west. Wetlands and streams are further discussed in the following sections.

### 7.2.2.2 Impacts at Wetland Discharge

#### Construction Impacts at Wetland Discharge

Construction impacts are similar to those discussed above for the river discharge alternative. Special-status species (bald eagle, great blue heron, and bog clubmoss) have also been documented within 1 mile of the wetland discharge site (see Table 7-3) as discussed for the river discharge.

#### Operation Impacts at Wetland Discharge

Because of the safeguards built into the design of the treatment facility and the possibility to monitor and adjust the flow of water to the discharge wetlands, impacts from implementation of either the Basic or Expanded Option for the wetland discharge are not likely to be significant. See the section earlier in this chapter titled Impacts at River Discharge for potential impacts of nutrients, metals, and elevated temperature on biological resources.

As discussed in the Water Quality Impacts for Operation of Wetland Discharge Section of Chapter 6, it is anticipated that a minimal difference in temperature between the highly treated water and the wetland environment could occur. The highly treated water could be slightly cooler or warmer than the receiving wetlands depending upon the time of year. The highly treated water being discharged to the wetland is expected to disperse into the wetland areas. Any cooling of the wetland waters that may occur during the summer months has the potential to improve water quality by slightly increasing dissolved oxygen levels in the wetland. Any warming of the wetland waters that may occur during winter months could affect water quality by slightly decreasing dissolved oxygen levels in the wetland. This temperature difference is not anticipated to have adverse impacts on biological resources associated with the wetland discharge site.

#### *Basic Wetland Discharge Option*

Beneficial effects from the introduction of highly treated water to discharge wetlands in the Stillwater Wildlife Area under the Basic Option could include providing greater water depth and an extended period of inundation to the existing forested wetland and wetlands that would be constructed. Increased depth of water and increased duration and extent of inundation could provide additional habitat for waterfowl and other species that depend on open water habitat. However, if the water level in these depressions draws down in middle to late summer, then reed canarygrass could be encouraged (Antieau, 2001).

Increasing the depth and extent of inundation in the existing forested wetland could lead to loss of forested wetland habitat if flood durations exceed the flood tolerance limits of the existing tree species. The relative quantities of water directed to the three discharge wetlands could be adjusted to direct less water to the forested wetland if necessary.

Increasing the extent of open water wetland habitat would provide greater opportunities for wildlife species that are “closely associated” and “generally associated” with open water wetland and emergent wetland habitats. Decreasing the extent of forested wetland habitat could have a detrimental effect on wildlife species that are “closely associated” with forested wetland and riparian habitat. These terms are defined as follows:

- **Closely Associated:** A species is widely known to depend on a habitat for part of all of its life history requirements.
- **Generally Associated:** A species exhibits a high degree of adaptability and may be supported by a number of habitats.

See Table B-2 for list of species likely to occur in the project area and their associated habitat types.

The discharge wetlands would have essentially no erosive condition. With periodic deposition from flood events this could result in a tendency to fill in the wetlands over a long period of time (Carollo, 2004b). If this were to occur, the wetlands could cease to provide open water habitat. However, periodic flooding does have erosive action, which could moderate the deposition activity. The potential detrimental effects of wetland sedimentation could be countered by monitoring and adaptively managing their operation.

#### *Expanded Wetland Discharge Option*

The Expanded Option would include all elements of the Basic Option as well as placement of large woody debris structures on Harris Creek and/or at several locations in the unnamed creek and connected oxbow, as well as the removal of a fish-passage barrier located on the unnamed creek.

In addition to the effects described above for the Basic Option, implementation of the Expanded Option could increase the water levels in Harris Creek and/or the unnamed creek upstream of the log structures, and increase the extent and duration of inundation in riparian wetlands associated with Harris Creek and/or the unnamed creek. The structures would hold water during the wet season, when the Stillwater Wildlife Area is already saturated, and into the late spring or early summer. The habitat benefits would occur mainly between May and October when surface water levels are typically the lowest. These benefits could include enhanced off-channel rearing habitat for Chinook and coho salmon in the Snoqualmie River.

Increased depth of water and increased extent of inundation in the riparian wetlands could reduce the overall cover of non-native reed canarygrass by exceeding the flood tolerance limits of this species. Decreasing the extent of reed canarygrass, combined with the planting of native shrub and emergent species, is likely to result in greater variety of native habitat conditions. An increase in habitat diversity is likely to increase native wildlife species diversity within the project area, particularly for waterfowl, for whom seed-producing vegetation is important and which depend upon open water habitat for breeding, nesting, and feeding (Ehrlich et al., 1988).

However, it is also possible that changes in the current patterns of inundation and drawdown of water in the discharge wetlands could result in increased cover of non-native, invasive plant species such as reed canarygrass. However, with monitoring and adaptive management incorporated into the proposal these potential impacts would be mitigated.

Increasing the depth and extent of inundation in the existing 5-acre wetland located next to the trail could also lead to loss of forested wetland habitat if flood durations exceed the flood tolerance limits of the existing tree species. Loss of forested wetland habitat could be considered a significant impact because of the relatively small amount of such habitat that currently exists in the Stillwater Wildlife Area. However, with monitoring and adaptive management incorporated into the proposal, these potential impacts would be mitigated.

Removing the fish-passage barrier at the mouth of the unnamed creek would open new off-channel habitat for salmonids. During periods of high flows within the mainstem Snoqualmie River, juvenile salmonids would likely seek refuge within these types of off-channel habitats. However, creating this type of habitat could also promote the use of these habitats by invasive species, which often prey upon juvenile salmonids (Haring, 2002).

#### *Endocrine Disrupting Chemicals*

See the earlier discussion in the river discharge alternative for potential issues related to endocrine disrupting compounds.